

JPRS 80818

14 May 1982

USSR Report

TRANSPORTATION

No. 81



FOREIGN BROADCAST INFORMATION SERVICE

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AIR

CIVIL AVIATION RESEARCH INSTITUTE'S WORK DESCRIBED

Moscow GUDOK in Russian 25 Feb 82 p 4

[Article by I. Sikorskiy from Moscow: "Whence the Sky Begins. Among Our Transportation Colleagues"]

[Text] The pilot's voice was audible through the loudspeaker: "I am coming in for a landing!"

Thus the airliner, flashing its silvery wings, swiftly flies into the airfield of the State Scientific Research Institute for Civil Aviation [SSRICA]. Another typical flight is ended.

I say that with reservation. The flight was typical only for the pilots and all those who observed the aircraft from the ground. But the airplane, assembled at a plant, will be checked many times in all flight modes before it is released for its first regular passenger flight.

Together with V. Sorokin, the deputy chief of the flight test complex at the SSRICA, I boarded the TU-154 airliner which had just landed. Now its passenger area reminds one of a laboratory. Control and recording instruments are everywhere. There are bags of sand under each seat. Thus is the full commercial load of the plane simulated.

V. Sorokin explains: "Our pilots test aircraft endurance and flight capability in extreme conditions." For instance, first-class test pilot V. Andreyev has made more than 700 landings in helicopters by switching off all engines at an altitude of about .5 km. The goal of such experiments is to teach civil aviation pilots to quickly make correct decisions in complex situations.

But the planes are not only tested in the sky. In the institute's hangar I saw a small passenger liner, the L-410. My attention was attracted by the brightly-colored skis on which the aircraft technicians had installed sensors. They were readying the aircraft's winter "boots" for tests, since the plane is to operate in Siberia and northern areas.

The underground part of the hangar, into which we descended by a metal ladder, which was almost vertical, resembled a subway tunnel. There were rails, platforms and wires. Only, instead of trains, there was a large robot on the rails.

They explained to me: "This is not science fiction. There are three such mechanisms here, all of them mobile. Hydraulic actuators move them to the slabs where an airplane is standing. Thus is the aircraft's center of gravity and exact weight determined."

But it is not only airliners, helicopters and their assemblies which are tested at the institute. I saw how the new kitchen equipment for the IL-86 airbus was tested. Breakfasts for 350 passengers were put in 2 electric-oven compartments. Also, modernized "samovars" were able to boil 3 liters of water in only 1 minute.

Somewhat earlier, while acquainting myself with the aircraft at the institute's airfield, I noticed that not all of the airplanes shine with a new paint job. Also, some "oldsters" such as the IL-18d were encountered. This plane was one of the first to be in Antarctica. And it was not so long ago that pilots made flights over the Atlantic Ocean in the IL-18d, conducting air reconnaissance.

The Mi-10k helicopter-crane is also a frequent guest at the institute's hard stands. The test pilots install high-voltage lines with masts on the helicopter. They also mount heavy industrial machinery on the Mi-10k and haul lumber. Recently, the crew of Mi-10k commander N. Bakulin worked at one of the test lumber industry enterprises in the Georgian SSR. Under difficult mountain conditions, the aerial lumber-carrier transported hundreds of tons of valuable lumber.

Also based at the institute's airfield are some airplanes with antennas which extend out far and unusual bulging illuminators. These are unique meteorological laboratories. Their crews often battle with cumulus clouds and sometimes are able to cause directed precipitation, at the request of agricultural workers. They tell the story at the institute about how a delegation of soccer fans came to the pilots with a request to stop the experiments. For some reason, the Tbilisi fans had decided that the abundant rainfall in the city was caused by the aviators.

The test pilots are also testing new airliners which are well known among passengers, as well as aircraft for the future. Today an AN-3 and an Mi-26 are taking off from the institute's airfield. The day is not far off when these aircraft will depart on their first regular flights.

9887

CSO: 1829/150

AIR

PLANT NO 410'S WORK DISCUSSED

Moscow VOZDUSHNYY TRANSPORT in Russian 23 Feb 82 p 2

[Text] Plant No 410 is one of the leading maintenance enterprises for civil aviation, a collective of communist labor.

This enterprise is well known not only in our branch of industry, but also among airlines of socialist and developing countries, for whom the plant repairs aircraft and engines. The workers at the plant fulfilled last year's plan for all technical and economic indicators. Output worth R536,000 was produced in excess of the plan.

At the plant, introducing new techniques and progressive technology, making efficient use of production capacities and existing equipment are of paramount importance. For example, last year 17 new production processes were introduced, part of the equipment was modernized, 56 processes were developed for repairing AN-24, AN-26, AN-30 aircraft and their hardware and 326 repair processes were redesigned.

The technological base of the plant is constantly expanding. Maintenance facilities for aircraft hardware went into operation with an area of 7,000 m². Warehouses were built for storing aircraft engines and spare parts.

Socialist competition with the motto "Not a Single Laggard Near Us" was extensively developed in the shops, teams, divisions and sections.

The collective at the plant participated in the movement whose goal was to progress "from results in maintenance to increased efficiency in the industrial branch." Agreements about socialist cooperation were concluded with neighboring enterprises and with the Kiev Institute of Civil Aviation Engineers.

Stepping up the tempo, the workers at Plant No 410 view their main tasks to be increasing production success, honorably fulfilling the tasks of the second year of the 11th Five-Year Plan and giving a worthy reception to the 60th anniversary of the formation of the USSR.

9887

CSO: 1829/150

AIR

REMOTE-CONTROLLED ELECTRIC PLANE DEVELOPED AT MOSCOW AVIATION INSTITUTE

Moscow VOZDUSHNYY TRANSPORT in Russian 16 Feb 82 p 4

[Article by VOZDUSHNYY TRANSPORT Occasional Correspondent S. Yarochkina:
"Electric Plane Can Do a Great Deal. Exhibits"]

[Text] Today a great deal is being said about inexpensive types of energy and about the transportation of the future. Our conception is that the technology of the coming decades will be very precise, ultrastrong, very economical and most of all, not harmful to the environment.

The electric plane answers all these needs exactly. You can see this plane with your own eyes; you just have to visit the Exhibit of National Economic Achievements of the USSR, where the exhibit "Scientific and Technical Creativity of Moscow's Youth" is on display.

"Electric Plane-3" was built by students and specialists of the Moscow Aviation Institute [MAI] under the direction of Professor Yu. Konev, doctor of technical sciences. The aircraft is remote-controlled. Commands are issued by the "pilot" from a compact control panel, set up on the ground. The electric plane can conduct meteorological research and various agricultural operations, patrol high-voltage power transmission lines, oil and gas pipelines and large forests. In general, without listing everything, the efficiency of the new item is about 95 percent.

An unpiloted, remotely-controlled aircraft for aerial photography with compact cameras is also on display at the exhibit, as an unusual synonym of the electric plane. G. Adzhimamudov, G. Samarov, V. Simakov, S. Bedzyuk and other specialists from the MAI worked to create the aircraft. Because of the peculiarities of its design, the aircraft does not need long runways. Therefore, it is proposed that the aircraft be used with geological groups for aerial photography of inaccessible areas of the terrain.

But the young designers from the special design bureau of the Moscow Institute of Civil Aviation Engineers [MICAЕ] were concerned about the supporters of free flight, and presented two models of delta-shaped gliders at the exhibit: "Ara" and "Favorit."

"Ara" has the classic design of a delta-shaped glider. Possessing structural peculiarities, it attracts attention with the unusually bright color of its sail.

ESCC-2 [Equipment for Surveying Communications Channels-2] is the name of a device designed by the MICAЕ specialists. The ESCC is intended to transmit discrete information (we should probably explain a little that discreteness is the same as discontinuity). S. Kishenskiy and S. Dyshlevskiy created the device, under the direction of Professor V. Vasil'yev, doctor of technical sciences.

The multi-section airfield mast, displayed at the exhibit, will also increase the safety of flights and aircraft taxiing. The mast was developed and produced by "Aeroprojekt," the State Planning, Surveying and Scientific Research Institute for Civil Aviation. Introducing the innovation, created by A. Bobkov, V. Gavko and S. Rybochkin, saved R40,000. The innovation will be used at airfields as bearing structures for glide-path radio beacons, approach lights, lighting and other units.

Of course, it is impossible to list all the items displayed at the exhibit of creativity of young Muscovites. There are developments in the fields of instrument making, electronics and household technology. In a word, I would like to recommend that our readers visit this fascinating exposition of innovations at our country's main exhibit.

9887

CSO: 1829/150

MOTOR VEHICLE

UPDATE ON AMUDARYA BRIDGE DEVELOPMENTS

Tashkent PRAVDA VOSTOKA in Russian 28 Mar 82 p 3

[Article by Sh. Zaiynutdinov: "Bridges of Tomorrow"; from the column "Checking the Fulfillment of Duties"]

[Text] Bridges bring people and continents together. Such passages are in the interest of friendship, good neighbor relations and mutual assistance.

Such [a bridge] is the combined railroad and highway bridge across Amudarya in the area of the Soviet border town Termez and the Afgan town Khayraton. For a long time the two neighbor nations dreamed of a safe passage over the violent Central Asian river that would strengthen the ties of their friendship and cooperation.

By agreement between the USSR and the DAR [Democratic Afghanistan Republic], the unique bridge across the upper part of Amudarya is being built by the Tashkent bridge building trust No 7—one of the largest regional subdivisions of the transportation construction ministry. The geographical scope of its activity stretches from southern and western Kazakhstan steppes to the cloud-high peaks of the Parim; from the shores of the Aral to Vakhsha; and from the Karakums to the Fergan valley. During the fourteen years of the trust's existence, its collective has put into service dozens of bridges, overpasses, access roads, road junctions, and other constructed facilities. Two-thirds of the construction and installation work is done on our republic's territory. Last year the bridge builders of No 7 trust delivered to the customers 60 crossing structures of various purposes. All of them were accepted as "good" or "excellent." They accepted intensified plans and obligations for the current year as well.

How everything is going?

"We have fulfilled 100.7 percent of our two-month task, and we used our allocation of 4.4 million rubles," says the trust's chief engineer V. Limanskiy. "We are also ahead of the March schedule. This gives a reason for saying with confidence that we will be able to handle the quarterly plan. The work that has been done during these months will permit the amount of unfinished construction to be reduced 7% by the end of the year as compared with last year's

"performance, and the construction and installation work plan to be exceeded by half a million rubles."

The [socialist] obligations state that the Termez-Khayraton bridge will open for traffic in May. The collective of the 32nd bridge team as general construction contractor is carrying out work schedules well ahead of time and intends to be ready as early as April with the first stage of putting the bridge into service. On the left bank, the erection of the last span is about to be completed, rails and pavement slabs are being laid, and the road surface is being prepared. Finishing workers have joined the crews. The amount of work they will have to accomplish in a short time can be judged just by the fact that "decorating" the construction will require six tons of paint.

It should be noted that the general contractor and subcontractors are getting much help from many Surkhandarinskaya Oblast construction organizations. Party and soviet authorities, as well as USSR mintransstroy [Transportation and Construction] leaders are paying close attention to this.

The tone of work is set by the 32nd bridge team personnel led by an experienced engineer Rudolph Vokhgel'd, who had experience on BAM. The all-purpose teams of M. Farrakhov and I. Dovbysh are in the front of socialist competition. Everyone taking part in the construction understands the important national significance of putting the bridge into service.

The crews working on the preparation of access roads are catching up with the bridge construction workers. All are confident that the Amudarya bridge will be open to regular traffic as early as in the third quarter of the year!

Trust No 7 also has many things to do in other Uzbekistan regions. In May automobile traffic will open earlier than promised on the overpass at the intersection of Pushkin and Uzbek SSR 50th Anniversary avenues in Tashkent, and the entire complex will be turned over by the 65th anniversary of the October [Revolution]. For the collective of the 13th bridge team led by V. Khotin this objective appeared to be "a hard nut to crack," inasmuch as it is in the neighborhood of a metro station. Team experts and planners had to use their heads to find a way to do the precision job of working in a limited area to put in a screw piling without stopping the underground train traffic.

In the Akmal-Ikram region the thirteenth team is building a bridge on Aktepa canal. So far everything is going on schedule but soon the work perimeter will increase, and complications are possible. The customer--the public services administration of Tashkent city executive committee--thus far has reached no decision on where to put the electric power lines.

Good news is coming from the 68th bridge building team--five supports out of eight are ready and so are three out of seven bridge spans across Karadarya on the main Andijan-Pakhtaabad highway where traffic will start in December. On Builders Day the Angren bridge on Kochbulak-Zif road will be turned over. Until recently there was a temporary crossing here which often was destroyed by flash floods blocking the way for huge ore trucks supplying raw materials for Angren-Almalyk industrial complex. The collective of the 13th bridge

team is building supports and spans ahead of schedule. The all-purpose teams of A. Podgorny, A. Marynytsk, A. Galushtyan and A. Kiselev are working at shock speeds in order to deliver the completed work for service on time.

"We are alarmed by the irregular deliveries of cement and sand," says V. Limanskiy. "They are indeed our basic raw materials. The akhangaran and Kuvasay factories shipped to our subdivisions less than one-third of the cement expected based on the quarterly supply plans. Partial help is coming from the Bekabad factory. However, there is an acute shortage of high-grade cements. Fine and coarse sand, deliveries are also "limping along." By the way, they frequently contain high amounts of clay.

The bridge builders are practically fulfilling their obligations step by step. And it is necessary that Gosplan and Gossnab and the Uzbek SSR Ministry of Industrial Construction Materials give them the necessary assistance. After all, every bridge and every step is a road to tomorrow for our economy and our life.

9932

CSO: 1830/305

MOTOR VEHICLE

ELECTRIC VEHICLES TODAY

Kiev RABOCHAYA GAZETA in Russian 4 Mar 82 p 4

[Text] Some letters received by the Editors contain requests for information about developments in electric vehicle building. We offer observations by Candidate of Technical Sciences Yu. Domlatovskiy received through the APN [Novosti Press Agency] service.

At present electric vehicles of five makes are being built in our country. The electric vehicle of the Ulyanovsk Motor Works (the UAZ-451-MI) differs from the other models in the system of alternate current electric traction and a built-in charging device. This makes it possible to recharge the lead-acid battery directly from the municipal electricity system. The charging device has a current convertor making it possible to employ a light, low-rpm traction motor. Vehicles of this make are already employed in Moscow for delivering products to stores and school canteens.

Vehicles of other models operate on direct current. The electric vehicle of the Yerevan Motor Works (YeRAZ-3734) and the Riga works' electric bus (RAF-2210) were used during the 1980 Olympics in Moscow. They have nickel-zinc batteries. They have a power capacity double that of lead-acid batteries, but they are also much more expensive.

Several electric vehicles designed at the Automotive transport Scientific Research Institute (NIIAT) have passed production tests in Podol'sk. They also operate on direct current, but unlike the Yerevan' and Riga vehicles they employ lead-acid batteries. There are other differences. Firstly, the traction battery is not recharged on the vehicle after use and is replaced by a charged one (during battery charging noxious fumes are evolved, which is why it must be done in isolated premises). The NIIAT electric vehicle features a light-weight design of mechanisms and body, which to some degree makes up for the large weight of the batteries. Thus, the body facing is made of duralumin, instead of the conventional frame there is a truss of thin-walled steel shapes, and the running gear (wheels, controls) is from a passenger car.

Of course, the complete replacement of motor transport by electric vehicles is hardly feasible in the near future as this would require a substantial expenditure of electric power for battery recharging, materials in short supply for their manufacture, and a reconstruction of the whole infrastructure (service stations, etc.). Nevertheless, in the interests of the protection of the environment it is considered expedient to introduce electric traction for motor transport, especially in big cities.

9681

CSO: 1829/181

MOTOR VEHICLE

BRIEFS

KAMAZ EXPANDING--A large repair foundry facility has gone into operation at the Kamskiy Association for the Production of Large Trucks. The first castings were produced a few days ago. The new production complex produces castings of parts and units designated for equipment repairs, not only at the KAMAZ plant, but at other motor vehicle enterprises of the country as well. Its capacity is the biggest in the industry--the first section alone can produce 17,500 tons of castings a year. When the construction is completed the facility's capacity will treble. [By U. Bogdalov, correspondent, Naberezhnyye Chelny] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 8 Mar 82 p 1] 9681

NEW CARS--The first cars of a new model, the VAZ-2107, have come off the conveyor of the Volzhskiy Motor Plant. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 13, Mar 82 p 4] 9681

NEW BUS--The new bus, trial runs of which have begun in Moscow, has an attractive body, a cab giving the driver a good view, and a comfortable passenger cabin. Another good feature of the new vehicle is its diesel engine "KAMAZ-740." The new model is much better than the customary "LIAZ." Power steering of a new design and a three-stage hydromechanic transmission makes the driver's job easier. The engine is located in the rear, which considerably improves the microclimate in the cabin. There are three wide doors through which passengers can enter and exit quickly. Serial vehicles, which were developed by experts of the All-Union Experimental Design Institute of Bus-Building in collaboration with personnel of the Likinskiy Bus Plant, are to appear on city streets at the end of the 5-Year Plan period. [Text] [Moscow PRAVDA 21 Mar 82 p 3] 9681

'ZHIGULI' SERVICE STATION--A new station for prophylactic and warranty servicing which has gone into operation in Zhitomir will help extend the lifetime of passenger cars and reduce maintenance costs. Its shops, which are designed to "treat" more than 20,000 "Zhiguli" cars a year, have modern diagnostic, regulating and repair equipment supplied by enterprises in Hungary and Czechoslovakia. The station has the largest alignment shop in the oblast. At the service of car owners are special stations where they can do repairs and other work themselves. The biggest spare parts store in the oblast will be opened in one of the buildings of the new complex. Zhitomirskaya Oblast already has a network of specialized and integrated car service enterprises. They are functioning in Berdichev, Korosten' and Novograd-Volynskiy.

A VAZ [Volzhskiy Motor Plant] car service center is to go into operation in the 11th 5-Year Plan. Service stations already offer car owners more than 50 types of services. The new "clinic" for "Zhiguli" cars is located near the Kiev-L'vov highway. This is very convenient for motor tourists. [A. Yanushevskiy] [Text] [Kiev RABOCHAYA GAZETA in Russian 8 Jan 82 p 2] 9681

POOR ROADS IN SIBERIA--The country around the Irtysh River in Omskaya Oblast is Siberia's leading producer of grain and livestock products. However, the Oblast loses produce worth tens of millions of rubles each year because of the poor state of roads. Only one-third of the public roads are hard-surfaced, and within farms only 4 percent are paved. To this day 219 central farmsteads are poorly accessible during flooding and summer rains. We have solved the problem of attracting funds from ministries called upon to participate actively in road construction in our oblast. But difficulties remain. As a rule the Gosplan does not allocate either machinery or materials for road work designated for different enterprises. The ministries, too, do not want to use metal, cement and other materials for allegedly secondary purposes. For that reason it would be useful to set up a centralized pool of funds contributed by the ministries and departments taking part in road-building. One of the main bottlenecks for the Omsk road-builders is gravel. The closest quarry is in Kokchetavskaya Oblast. At present there is a small facility there which cannot meet our needs even by one-half. The plant must be reconstructed, but it's being delayed and in the meantime we haul gravel from the Urals and the Kuzbass more than 1000 km away. Bridges are another weak point, because they were not designed for modern heavy vehicles. Only 18 of the oblast's 193 bridges are reinforced concrete or metal. This is because "Omskavtodor" [Omsk motor road administration] lacks its own bridgebuilding facilities. We consider it necessary to set up in the oblast a specialized, well-equipped agency within the Republican "Avtomost" [Motor Bridge] association. [By V. Omel'chenko, deputy chief of "Omskavtodor" administration] [Text] [Moscow IZVESTIYA in Russian 20 Feb 82 p 2] 9681

CSO: 1829/181

RAILROAD

MOLDAVIA ADOPTS L'VOV'S SYSTEM

Moscow GUDOK in Russian 25 Feb 82 p 2

[Article by B. Barinskiy, chief of the railroad's technical division: "The Comprehensive System for Effective Utilization of Freight Cars: Registered for Residency in Moldavia. L'vov's Experience in Service to the Five-Year Plan!"]

[Text]--Kishinev--A relatively small amount of time has passed since the publication of the CPSU Central Committee Decree: "The Work Experience of the Employees at Rail Transport Enterprises and Industry of L'vov Oblast in Effective Utilization of Freight Cars." What has been done in this vein on our railroad? A group of specialists from the main line visited the homeland of this initiative and met with representatives from industrial transport shops, with station workers, managers of the L'vov Railroad and officials of the oblast party committee. They saw for themselves that L'vov had succeeded in setting up a harmonious system of mutual obligations and mutual responsibility for utilizing rolling stock. Direct dependence is advantageous both to the railroad and to industrial enterprises.

At present, 24 large industrial enterprises in the Moldavian SSR are working according to the L'vov system. In the near future, 47 more enterprises will join them. The overall volume of loading and unloading at these enterprises is almost half the volume of similar operations carried on all the spur tracks of the railroad.

A procedure for computing car-hours for each enterprise has been developed and introduced. Experienced workers of the freight service do this computation. Every 10 days, the question of utilizing freight cars is discussed in the railroad directorate jointly with representatives of the republic's enterprises, ministries and departments.

Members of the railroad's Commission on Introducing L'vov's Experience, headed by N. Titov, the first deputy chief of the Moldavian Main Line, visited all the stations and enterprises which had switched to the L'vov system. They analyzed the work of transport shops and told about the valuable experience of the L'vov workers. Many questions of a technical nature were raised. But the main problem was psychological re-orientation. In this matter we were especially aided by the city party committees from Kishinev, Bendery and Tiraspol', which did a great deal to introduce the Comprehensive System for Effective Utilization of Freight Cars (CSEUFC).

However, some industrial enterprises used all sorts of pretexts to delay introducing the L'vov experience. Thus, for example, the managers of the cement and slate combine, which is served by Rybnitsa Station, brought forward reasons which essentially delayed introduction of the L'vov experience for an indefinite period. But conditions at the combine are better, perhaps, than at many other enterprises. A station was built for the combine, electronic interlocking and dispatch control are in operation. And some other enterprises are refusing to switch to the L'vov system. Strictly speaking, no one objects to the system. But when it comes to signing mutual obligations, the privisos begin. Of course, such managers are set straight, but the re-orientation is still proceeding extremely slowly.

For instance, a manager reasons thus: "Well, we allowed freight car idleness above the norm. We will pay the fine. Of course they will curse, but the station will still have to provide cars for the planned freight loading. Otherwise, the station itself will be penalized. But, if we sign the mutual obligation to develop and introduce the CSEUFC and we again hold the rolling stock too long, then we will also have to pay a fine, plus we will lose the right to receive a definite quantity of cars planned for freight loading."

This is connected with the plan for disposition of output. It doesn't occur to such a manager that he might not receive cars in that instance, since when his enterprise holds rolling stock too long, resources for loading freight are reduced.

Let's put the question another way. In such an important matter as disseminating advanced experience, why must one rely solely on the willingness or unwillingness of an enterprise's manager? Even at the start of the Soviet regime, Vladimir Il'ich Lenin emphasized that the force of example must be moral at first, then later it must be a model, introduced coercively, of labor organization. Note--coercively! So the procedure must be legalized whereby when there is a lack of cars, the railroad can reduce the number of cars provided for freight loading to those who are exceeding an indicator such as car-hours. Also, the railroad must not bear the responsibility for this. That will force the managers of enterprises to develop spur tracks, introduce new equipment in the transport shop and improve the production process. In short, elements of L'vov's experience will be introduced. But, in our view, the railroad workers must also increase material incentives for saving car-hours.

Let's dwell on the idleness of freight cars at seaports and river ports. Of course, the experience of the Leningrad workers helped to considerably accelerate processing of cars and vessels. For example, car idleness at the port of Reni was reduced by almost 1-1/2 hours. However, the norm is still not being met and there are large losses of freight loading resources. But, in many cases, the port is not responsible for excessive holding of rolling stock which arrived to be unloaded. The deeply-rooted habit is at work of considering the port to be some sort of intermediate point. But what difference does it make where a freight car is idle--on spur track or at a port?

Now let's take the planning of the monthly quantity of car-hours for an enterprise. Although freight loading can be planned for the period, the situation with unloading is more complicated. True, corrections are made

every 10 days in the journal for calculating fulfillment of car-hour norms. But don't you agree that if a plan is changed three times during a month, then what sort of a plan is that? That is why we did not assign to enterprises a monthly car-hour norm. Loading and unloading of rolling stock for a 24-hour period, assigned and fulfilled idleness norms are the planned and actual results expressed in car-hours. Those enterprises which we switched to the L'vov system, saved more than 11,000 car-hours and received the right to be supplied with additional rolling stock.

The L'vov experience provides for using progressive production processes. It embraces the entire chain of the transportation process, including processing of rolling stock, more complete utilization of carrying capacity, developing spur tracks and monitoring the evenness of carrying out freight operations.

On our railroad, a system of scheduled loading according to routes was developed, taking into account the plan for making up trains. This system permitted us to more precisely organize the passage of freight traffic, reduce freight car reclassification at junctions and curtail idleness while cars were being accumulated. For example, at the cement and slate combine in Rybnitsa, production output was coordinated with the station's scheduled freight loading. This turned out to be a simpler method. But how could this matter be handled, say, at the republic's Goskomsel'khoztekhnika [State Committee for Agricultural Equipment] base at Revaka Station? After all, its freight is transported only within the republic. A solution was found. It was decided that cars heading for Kishinev would be loaded on odd days and cars for Bendery on even days.

It is no secret that a railroad's indicators are dependent, to a great extent, on the successful activity of the key stations. The volume of work at these stations is constantly increasing; new enterprises with spur tracks are appearing; freight loading and unloading is also increasing on common-use tracks. How can car idleness be reduced at these stations? We organized dispatch control of freight and shunting operations. Thanks to this, car idleness was quickly reduced by 2 to 3 hours at such key stations as Rybnitsa, Reutsel, Bel'tsy-Gorod, Revaka and Gidigich.

Due to the further improvement of the technology of transportation, considerably better results might have been attained. To achieve this, I think that it is important to concentrate the decision of all corresponding problems in the hands of the chief production engineer of the division and the railroad. Unfortunately, such positions do not yet exist in transportation. Possibly it is time to think about combining the technological groups, the railroad's laboratories devoted to the scientific organization of labor, the Railroad Center for Scientific and Technical Information and other subdivisions into unified technological centers for the divisions and railroads. Be that as it may, one thing is clear: experienced specialists must constantly and systematically work to improve technology.

The need has also arisen to publish a new document, based on the changed work conditions, which would provide common directions for developing the technology of transportation. The functions of computer centers must be precisely defined. It is the fashion to load these centers down with work related to bookkeeping. Of course, that is necessary. But the main thing is to achieve the active and direct participation of the computer centers in developing and introducing optimum production processes.

RAILROAD

REPORT ON WINTER OPERATIONS

Moscow PRAVDA in Russian 21 Dec 81 p 2

[Article by Genadiy Yastrebtsov: "Economic News—The Winter Trains"]

[Excerpts] The Railroad Car in Circulation

At the beginning of December a report came in from Siberia: the railroad car workers of the young Baykal-Amur Mainline [BAM] have fulfilled the yearly plan nearly a month ahead of schedule. They have delivered approximately 3 million tons of coal to the enterprises of the country's eastern regions. The BAM workers have had a hard time of it—the 40-degree frosts have plagued the route for more than a month. But the railroad workers have pitted their will and expertise against the harsh nature. At the technical service points they have made a punctual and thorough check of the rolling stock and at the coal loading station they have improved the technology of the shunting work. The average weight of the fuel express trains has been brought up to 200 tons and one-fourth of the trains operate as relays, which has enabled them to accelerate the turnover of cars. The operational BAM workers have resolved to transport 200,000 more tons of coal before the end of December.

The collective of the Novomoskovskiy section of the Moscow Railroad is maintaining a rhythmic pace in delivering to the consumers the most important winter freight—fuel. Since the beginning of the year they have dispatched from there more than half a million tons of coal over and above the assignment. The empty cars arrive at the station with regularity and—what is important—the cars with freight depart in serviceable condition. This helps to avoid losses of freight en route.

However, as a whole the country's railroads are still not fulfilling the assignments for the transport of a number of the most important products, including fuel. It is as if the winter has caught the railroad workers napping. In the first half of December alone the consumers received nearly 1.5 million tons of coal less than the amount called for by the assignment. For petroleum products the arrears amounted to more than a million tons. This is in part due to the delays in the delivery of empty cars. In December there were days when the freight shippers failed to receive 4-5,000 open cars each from the railroad workers. There was a large deficit for the Oktyabr', Southwestern, Southeastern, West Siberian and a number of other railroad mainlines.

Tens of thousands of cars were not given the prewinter planned repair at the proper time. Unserviceable rolling stock is often shifted from one mainline to another. For example, of the 120,000 cars which arrived at the Odessa Railroad for the loading of grain a very large number were unsuitable. And the technical condition of the locomotives leaves much to be desired.

The facts are alarming. Especially since strenuous and crucial work lies ahead. In the remaining days of December it is necessary to dispatch not less than 10 million tons of freight every day. Considerable increases must be achieved in the shipment of coal, petroleum products, iron ore, and grain.

In the approaching year loading must be increased even more. To successfully cope with the planned assignments the railroad workers must accelerate the turnover of every car by approximately 10 1/2 hours and must step up the productivity of the rolling stock.

The problem is a complex one and it is not being resolved by some of the railroad workers. It requires carefully thought out and coordinated joint actions on the part of the transport and production workers. Because of the shortage of cars, their above-plan layovers, and the spoilage, there is often a low level of technological discipline at the transfer platforms and an inadequate development of the freight transport activity, construction projects, and mines. At the enterprises of the Krivoy-Rog Basin, for example, the layovers of cars are above norm year after year. At the Central Mining and Concentrating Combine the car layovers exceed the norm by 5-6 hours. Instead of addressing itself in a fundamental way to the development of the transport function and preparing the metallurgical raw material for dispatch on time, the combine pays large fines to the railroad.

The layovers of cars at the Altaysel'mash [Altay Agricultural Machinery Plant] are nearly twice the norm. On the network of railroads by the beginning of December altogether nearly 58,000 cars were to all intents and purposes "locked out." For this reason alone hundreds of thousands of tons of various kinds of freight were not delivered to the consumers on time. This winter the work of making cars available on time is proceeding especially poorly at the enterprises of ferrous and non-ferrous metallurgy, the timber, cellulose--paper and woodworking industry, and agriculture. If things continue in this way, there will scarcely be enough cars even if new plants are built for the production of them.

Only one-fifth of the time from loading at one station to unloading at another is the car in motion; the other four-fifths of it is standing. As it is, the figures show that increasing its speed even one kilometer an hour will for the entire network be equivalent to the launching of a large car-building plant. This is where the unused reserves lie!

We know that without rails neither the locomotive nor the cars will move from the spot. So that the steel track is literally the foundation of the movement of trains. The railway engineers, this infantry of the railroads, always have many functions and concerns but particularly in the prewinter and winter periods. They have to check and see to the serviceability of every meter of the rail bed and the repair and delivery of the snow fences.

The "Infantry" on Rails

Wherever the track service has prepared well for the winter the trains proceed without delays even in snowstorms. For example, one of the most difficult sectors of the Gor'kiy Mainline Railroad is the Cherusti-Druzhinino sector. The topography there is complex and there are many elevations, bridges and crossings. But the workers of the Kazan' track division have been able to open up a "green light" thoroughfare for the trains.

On the Moscow Railroad we somehow managed to see at work the present-day aces of the steel track repair. During a brief four-hour "window" they fully restored two kilometers of rails. It's true that it is hard to describe these people as railroad infantry—they are rather motorized infantry because they were largely "out-fitted." All the operations were mechanized: one machine removed the rail grating, another changed the ballast, a third put on a new grating and a fourth did the graveling. This complicated business was completed in only 240 minutes.

These isolated examples of shock work, however, are not enough to indicate that the movement of trains is everywhere being organized with efficiency. More often one sees among the railway transport workers not records but crude, lackluster, laborious and slow work. It has been snowing, let us say, since morning, and a snowstorm and a blizzard have developed. The sticking snow is everywhere accumulating with such density that the switches have to be cleaned by hand. You cannot get it done in time—you knock out the schedule and delay the trains.

At the Ministry of Railways they have not been giving their attention to the track organization. And so by the beginning of the year it turned out that there had not been fulfilled the capital repair plan, the laying of the seamless track on the ferroconcrete ties, and the replacement of the worn rails. All this led to the sad necessity before the locomotive engineers were sent out on a run to hand them caution notes about limiting the speed of the trains on a particular run. And this meant a delay in delivery of the freight which was being awaited with impatience at the plants and the construction projects and in the kolkhozes and sovkhoses.

For the railroad transport workers the labor conditions are complicated. They work under an open sky in rain and snow and wind and frost. The level of mechanization of the railroad work is as a whole still low. Mostly the work consists of manual operations in the so-called current track maintenance, which employs hundreds of thousands of persons, nearly half of them women. Is it any wonder that there is a shortage of workers on the railroads, especially near the cities? To retain the people it is necessary to be more concerned about them and to improve the conditions of their labor and living: to supply them with warm special work clothing at the proper time, to set up heating points, and to provide hot food at the working places. And finally, it is time to reduce the heavy and manual labor to a minimum and to make fuller use of the facilities for minor mechanization.

A good track comprises not only rails but also bridges. On our railroads there are more than 50,000 bridges of various kinds. They do not all meet today's strict requirements. Some of them are of old construction and have long been in need of replacement. Because of the poor condition of the railroad bridges it

daily becomes necessary to issue to the train engineers 500-600 warnings about limiting speeds. Such "ragged" movement with frequent braking of the train and subsequent switching on of the traction motors is uneconomical: the trains are delayed even though more energy than is necessary is expended.

Transport--An Over-All Concern

In our intricate national economic complex transport ties together all the links of the economic system. At the same time, transport itself is in many respects dependent on dozens of sectors of industry as are the plants which must deliver to transport everything it needs. This means that steady operation of the steel mainlines, especially in the difficult winter period, requires not only painstaking and conscientious work on the part of the railroad personnel but also a program which provides these railroads with the various materials, mechanisms, equipment, fuel and spare parts.

The beginning of the current winter has already shown that things are far from altogether satisfactory in this regard. Let us take the track work, for example. In the 11 months of the current year, against a plan for 1.934 million tons of rails, the Nizhnetagil' and Kuznetsk combines and other enterprises of the Ministry of Ferrous Metallurgy USSR shipped only 1.57 million tons. Where are we to get the other 364,000 tons of rails, including 301,000 thermally hardened ones? And this, after all, involves no less than 2,300 kilometers of the steel lines!

The same Kuznetsk Metallurgical Combine, the Makeyevka plant and the Azovstal' [Azov Metallurgical Plant] underdelivered 52,600 tons of rail fastenings. There is a severe shortage of ties. The specialized plants of the Ministry of Construction Materials Industry in Aktyubinsk, Georgiu-Dezh and Vyazma, for the period since the beginning of the year, owe the railroads 2.5 million ferroconcrete ties and the enterprises of the Ministry of Timber, Cellulose-Paper and Woodworking Industry about 3.5 million wooden ties. The timber organizations of this ministry are disrupting the delivery of lumber, as a consequence of which every day tens of thousands of covered cars lay over waiting for repair.

The plants of the Ministry of Heavy and Transport Machine-Building have put some good track machines into production. But only one-third of the railroads' need for these is being satisfied. There have been long delays in the rebuilding of the existing plants and the construction of new ones has not even begun although there has been much talk about it.

The industrial enterprises are disrupting the deliveries of rolled metal, locomotive and car batteries, ball bearings, and other equipment needed for efficient and rhythmic operation of the steel mainlines.

It is necessary to remedy the situation in the near future, to help the railroad personnel to work more effectively, and to organize uninterrupted movement of the transport conveyer.

As we know, the basic planned indicator--ton-kilometers--impels the railroad workers to transport freight and people without caring too much about the final

result. But after all, the act of transferring something is of itself only part of the transport work. It can be considered completed if all the enterprises get everything they ordered on schedule and in full volume.

The railroads are operating with great intensity, a fact which they demonstrated in the very first weeks of winter. The reserves for directly increasing the traffic and carrying capacity of the mainlines will become increasingly smaller. This means that it is imperative to take more decisive steps to strengthen the material and technical base of the railroads, accelerate the scientific-technical progress, improve the management of the transport process, eliminate cross-haul shipments, and introduce indicators which will provide economic motivation for the collectives to more rapidly supply everything the consumers need.

Such are the requirements with which railroad transport is today being tasked.

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CSO: 1829/87

OCEAN AND RIVER

DEVELOPMENT, FUTURE OF PORT VOSTOCHNYY ASSESSED

Riga SOVETSKAYA LATVIYA in Russian 21 Jan 82 p 2

[Article: "Port Vostochnyy: Yesterday, Today and Tomorrow" under the rubric "One Big Family"]

[Text] The port of Vostochnyy is one of the largest in our country. Petr Korenev, deputy chief of the state economic association "Dal'flot" of the Ministry of the Maritime Fleet told APN correspondent Yuriy Dvorzhak what it will become in the current Five-Year Plan.

Half of all foreign cargoes are transported to our country by sea. This is not only because of the relative cheapness of maritime transport but also because the sea boundaries of the USSR are twice as long as the land boundaries and, in many cases, the sea is the only avenue of communication between our country and our trading partners.

Until recently, a substantial part of domestic freight and all of the foreign trade haulage to the Far East was accomplished through the ports of Nakhodka, Vladivostok, and Vanino at whose piers the Transiberian railroad terminates and ocean routes to the ports of all continents begin. The burgeoning development, however, of the new economic regions including those which are distributed along the BAM [Baykal-Amur Railroad], and also the growth of the foreign economic communications of the USSR led to a substantial growth in the freight volume and required the construction of a new port on the shore of the Sea of Japan - Vostochnyy. In time, its cargo turnover will substantially exceed that of existing Far East ports. This will be the largest highly mechanized deepwater port in the country into whose design and construction all the latest achievements of scientific and technical thought have been incorporated.

The port is being constructed in Vrangeli Bay near the city of Nakhodka, and the first phase of it already has been put into operation. The first phase consists of four large complexes: a complex for the transshipment of timber, a container terminal which takes care of the principal volume of large freight containers of the Transiberian rail line, and complexes for the shipment of industrial wood chips and coal. The coal transshipment complex, by the way, is the largest in the USSR. The capacity of its first phase is over 6,000,000 tons per year. Bulk carriers with 100,000-ton cargo capacity can come to the piers of this unique facility.

Already the port can process more than 8,000,000 tons of cargo per year which is taking the stress off the ports of Vladivostok, Nakhodka, and Vanino. In the basic directives for the economic and social development of the USSR for 1981-1985 and up to 1990, as adopted by the 26th Congress of the CPSS, it is planned to proceed with the construction of the second phase of the port of Vostochnyy.

During the 11th Five-Year Plan, the flow of various cargoes into the Far East basin will be increased substantially because of the growth of the economic potential of the whole region and the broadening of trade relations with the countries of the Pacific Ocean - Japan, Vietnam, Cambodia, India and others. It is planned to put the large new facilities into operation and to increase the capacity of the already operating complexes. Five new piers will be put in service including a coal pier which, together with the already active complexes, will permit processing over 10,000,000 tons of solid fuel annually. From here, coking coal, shipped from the deposits at Yuzhnaya Yakutiya along the Baykal-Amur railroad, will be exported to Japan and other countries.

The industrial development of the timber resources of the Far East which amount to 13% of the timber of the country requires the building up of appropriate transshipment capacity at the ports.

To the existing Vostochnyy timber pier, a new one will be added. It will have a second "specialty"; namely, the capability to handle general cargoes - rolled steel, equipment and machinery.

By 1985, according to the estimates of experts, the processing in Far East ports of foreign trade cargoes and through-shipments of foreign trade cargoes in large-tonnage containers will have grown by a factor of three. Transport over the continent - on the railroad - is the shortest and therefore the most convenient way of exchanging goods between companies in the countries of Western Europe and the Near East and their trading partners in Japan and South East Asia. The capacity of the container terminal at Vostochnyy already has reached 700,000 containers a year. After placing the new transshipment facilities of the second phase into operation, it will become possible to transfer to Vostochnyy all of the through-shipment cargoes and to free the terminal of the port of Nakhodka for the processing of coastal cargoes.

With the completion of the construction of the second phase of the port, it will be possible to provide, for ships calling at the port, a whole series of services - from the supply of provisions and fuel, to repair work.

By 1985 it is planned to achieve a 100% level of mechanization at the port. The loading of ships with industrial wood chips and coal already is completely automated. An automated system controls the movement of containers through the port of Vostochnyy from Japan and other countries of South East Asia to Western Europe and vice versa. An "electronic pilot" is operating. It is a complex control system for regulating and monitoring navigation, and for conducting maritime transport under conditions of poor visibility.

The construction of the deepwater maritime port has entailed a significant transformation in this part of Yuzhno-Primor'ya. In the environs of the bay, housing tracts have sprung up and among them a future city - a satellite of Nakhodka - the settlement of Beryegovoy, estimated in the future to have 60,000 persons. A social and economic development program for the settlement is a component part of the construction of the second phase of Vostochnyy - the powerful transportation terminal at the junction of the land and the seaways of the Soviet Far East.

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CSO: 1829/186

OCEAN AND RIVER

DEVELOPMENT OF FAR EASTERN PORTS EXAMINED

Moscow GUDOK in Russian 10 Mar 82 p 4.

[Article by N. Balakirev of APN: "Prospects for Developing Far Eastern Ports"]

[Text] A program for the development of the seaports of the Soviet Far East up to 1985 has been worked out.

The necessity of such a program is connected with the growth of the economic potential of Siberia and the Far East says V. Byankin, deputy director of the Far East scientific research institute for the planning of maritime transportation. The productive power of these regions, as defined by the decisions of the 26th Congress of the CPSS, will be developed at an accelerated pace in the next decade. The flow of cargoes for the different branches of the national economy in distant regions of the country and for the normal sustenance of the local population is steadily being increased. At the same time, the volume of products being shipped by Far East enterprises into other areas and abroad is growing. Through the Far Eastern ports goes the commercial trade with Japan, Australia, Vietnam, KNDR [The Democratic Peoples Republic of Korea], and other states of South East Asia. It is planned that the freight turnover in maritime transportation in the country will be increased by 8 or 9 percent in the 11th Five-Year Plan.

The fundamental task of the program is to provide for the growing domestic and export and import transportation needs. Primary attention was given to the throughput capacity of the ports as a guarantee of the timely delivery of cargoes to consumers. Therefore, one of the points of the program is the increasing of the lengths of the piers by means of modernizing existing piers and building new ones. In so doing, it is proposed to use the latest achievements in hydrotechnical construction.

In Vladivostok for instance, construction is planned of a transshipment complex to handle vegetables, fruits, and other perishable products. One of the piers is being equipped for the transshipment of the containers which are being sent into the north-eastern regions of the country.

It is planned to convert two piers in Nakhodka for export and import cargoes. Formerly ships sailed from here with coal, but now this cargo flow has been transferred to the new highly mechanized port of Vostochnyy which is capable of loading seagoing ships at the rate of 3,000 tons an hour. In the future, Vostochnyy port

in Vrangeli bay will become the largest in the country. The presently operative complexes there are processing more than 8,000,000 tons per year of coal, timber, wood chips and containers. New terminals are being added.

Construction also will be continued on the second stage of the ferry crossing from Vanino to Kholmsk, connecting Sakhalin Island with the continent. With its introduction into service, the necessity for transshipping a part of the cargoes in ports came to an end, thus reducing the number of labor consuming operations. At the same time, the cargo transfer capacities of the ports of Vanino and Kholmsk are being expanded.

The level of mechanization of loading and unloading operations, continues V. Byankin, is being increased and also one of the points of the program is the development of port equipment and management. For this purpose the most modern equipment will be installed in the ports. In the first place this means highly mechanized and automated cargo transfer complexes. Compared to general purpose piers, their productivity is several times higher. Vostochnyy will be equipped with such complexes first.

The general purpose piers at Nakhodka, Magadan, Petropavlovsk-Kamchatka, Kholmsk, and other ports will be equipped with new, larger capacity portal cranes. For operations on the piers, in the warehouses, in railroad cars, and in the holds of ships, new, high-productivity mobile electric loaders will begin to be used.

As regards passenger transportation, it is proposed to open new local lines on which more comfortable modern ships will operate. A new passenger sea terminal will be built at Nakhodka. It will receive passengers using the services of lines from Nakhodka to Yokohama, and Nakhodka to Yokohama and Hong Kong.

In conclusion V. Byankin noted that our state considers as its principal task the improvement of the life of the Soviet people. This was taken into account in full measure in our program. Substantial funds were assigned for the development of the social base of the port cities and settlements. The construction of tens of thousands of square meters of dwellings and houses of culture is planned. The expansion of existing and the construction of new educational institutions for the training of qualified cadres of port workers has been specified for each port.

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CSO: 1829/186

OCEAN AND RIVER

PROBLEMS OF NORTHERN SEA ROUTES NOTED

Moscow GUDOK in Russian 26 Feb 82 p 4

[Article by APN economic reviewer L. Korenev: "The Northern Sea Route - Problems and Promises"]

[Text] The Arctic today has great economic importance. There are the Murmansk area with its industrial complex, the 200,000 people in Noril'sk with its metallurgical plants, the Khantayskaya GES, the Bilibinskaya AES, and the gas deposits of Medvezh'ye, Urengoy, and Yamburg of which there are no equals in the world. These gas reserves are estimated at trillions of cubic meters and in the near future pipe lines will be laid from here not only to the central part of the country, but even farther, into Western Europe. There also are coal, oil and bituminous shales, tin, tungsten, cobalt, and apatite ores and copper and nickel raw materials.

This is what is known today. The prospects are still more important. The Arctic zone of the USSR, including the shelf of the Northern Ice Ocean, occupies about 9,000,000 square kilometers - forty percent of the territory of the country. If it is assumed that the natural resources are evenly distributed, then almost half of the mineral wealth of the USSR should be concentrated here. Indeed, if the geological characteristics of the formation of deposits of mineral resources are taken into account, there are substantially more of them there. In the opinion of specialists, for instance, the whole littoral of the Ice Ocean from Arkhangel'sk to the eastern extremity of the Taymyr peninsula is a continuous province of oil and gas. Academician Abel Aganbegyan considers the exploitation of the Arctic resources as the largest economic program of the future. But, to support it, there should be year-round navigation along the Northern Sea Route.

The distance between Leningrad and Vladivostok via the Suez canal is 23,200 kilometers. But along the Northern Sea Route, it is 14,280 kilometers. And then the route along the higher Arctic latitudes is still shorter by a third. In principle, navigation by this route is possible. The nuclear icebreaker "Sibir" conducted the cargo ship "Kapitan Myshevskiy" along precisely such a route in 1978.

But the importance of the Northern Sea Route for our country is considerably more than the simple saving of distance. In fact, for many regions of Siberia and the Far East, maritime transport is the only means for the delivery of heavy cargoes. Here on the Arctic coast where permafrost and salt marshes prevail, there are

almost no rail or motor vehicle roads. Aviation is not in a condition to transport cargoes estimated in millions of tons. The rivers of Siberia are important transportation arteries but they flow in a meridional direction. A latitudinal route is needed.

Consequently, there is no alternative to the Northern Sea Route.

Many have sought a Northern Sea Route - English, Dutch, Danes, Swedes, Norwegians, French, and Russians. At the end of the 19th century the Nordenshel'd expeditions, financed by Siberian gold miners, were the first to pass over this route without wintering. It required, however, just a hundred years, until 1978, for commercial navigation along the Northern Sea Route to become year-round. And then, it was only along the western part from Murmansk to Dudinka.

Up to this time a whole epoch in the technical development of the icebreaker fleet has passed. In 1977 the Soviet nuclear icebreaker "Arktika", breaking centuries old ice, reached the North Pole. And in the following year, there ceased to be only a single route from Murmansk to Dudinka. It appeared that the problem of year-round navigation on the Northern Sea Route had finally been solved. Indeed, the author of these lines, on completing such a voyage on the "Kapitan Dubinin", compared its dullness with a truck trip along a highway or a freight train along a railroad. From the point of view of specialists, this comparison was completely correct. It would be if it were not for one circumstance. The 1978-1979 navigation period in its ice conditions turned out to be extra complicated. Over the whole length of the route the ships received 124 injuries. They all came out covered with wounds.

Such accident prone navigation has set back the efforts of many years.

Nevertheless, in the current Five-Year Plan, the Soviet Union Plans to attain dependable navigation in these latitudes.

The icebreakers are the basis of navigation on the Northern Sea Route. And, today, they are nuclear powered icebreakers. The nuclear icebreaker "Lenin" has been operating in the Ice Ocean for 20 years. Under her stern 359,000 miles have passed and more than 2,000 cargo ships have been convoyed. The power of this icebreaker is 44,000 horsepower. The power of the second generation of nuclear icebreakers - the "Arktika" and "Sibir'" - is 75,000 horsepower. Before long the family of nuclear powered "go-anywhere ships" will be reinforced by still another - the "Rossiya". Its construction has begun at the Baltic shipyard in Leningrad. The fleet of conventionally powered icebreakers also is being enlarged.

But the severe navigation period of 1978-1979 (it was unprecedented in decades) showed that for successful navigation in ice, not only powerful icebreakers are needed but also considerably stronger ships. Therefore builders now make a class of cargo ships with the classification "ULA" (strengthened for Arctic ice) and with 8,000 to 15,000-ton cargo capacity (formerly it was 5,000 to 7,000 tons).

In the current Five-Year Plan, the cargo fleet will be fitted with nuclear power plants. Fuel beyond the Arctic Circle is dear and the fleet's need of it is great. A nuclear powered lighter-and-container carrier is being designed which will

independently be able to overcome the ice obstacles. This ship will be capable of being unloaded directly into the sea without the need of piers. Under Arctic conditions - and not only Arctic conditions - this is very important.

Other projects exist, specifically, cargo ships for underwater (under ice) navigation.

According to a prediction expressed by the special expedition of the Siberian Department of the USSR Academy of Sciences which is studying the outlook for the Northern Sea Route, by the 21st century, this route will be able to outstrip the Baykal-Amur railroad in transportation volume.

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CSO: 1829/186

OCEAN AND RIVER

ARKHANGEL'SK'S NAVIGATION SEASON TODAY

Moscow VODNYI TRANSPORT in Russian 4 Mar 82 p 3.

[Article: "Time--An Economic Factor"]

[Text] "The Arkhangel'sk mercantile sea port. Duration of navigation season, 6-7 months." (BSE [The Great Soviet Encyclopedia] third edition, Volume 2, 1970.)

The municipal roadstead of the port of Arkhangel'sk is the widest place in the Northern Dvina. In February its whole water area is filled with a jumble of ice.

Such is the picture in all the shipping channels of the river. In winter we do not have level, intact ice says Georgiy Alekseyevich Larionov, the deputy port captain. This jumble is at least a hinderance to us at work, but on the other hand, if you consider it, it clearly testifies that today, our movement of ships does not stop with the coming of winter.

The natives of Arkhangel'sk went about this purposefully. Even in 1973 the interruption between the last ship leaving the port and the first ship arriving here amounted to less than 2.5 months. In 1976 it was reduced to two months and in 1977, to one month. In the following year, on the basis of an order of the Ministry of the Maritime Fleet, the navigation period in the port of Arkhangel'sk was declared to be year-round. Today this is usually the case. So now it is necessary to make a correction in the Encyclopedia; namely, that the navigation season in Arkhangel'sk lasts not 6 - 7 months, but year-round.

This harbor is special. The great length of the ship channel - 46 miles - puts its imprint on everything including the course of the winter navigation season.

It is far more complicated for us to work now than in summer says G. Larionov. In fact, even to go somewhere is a problem. An ordinary launch will not run in our ice jumble. I have not mentioned that in summer we generally are not interested in when and how a ship is supplied with everything necessary as requested by the crew. But now we keep track of this especially. It is much easier for us to work in the late fall and the beginning of winter and also in April. Probably many visitors to Arkhangel'sk at this time are astonished that the river is not covered with ice. It goes without saying that this is not a "mystery of nature" but a man-made event so to speak. The fact is that since 1974, the ships of the port fleet have been carrying out rather unusual operations. Regularly they break up the ice field letting its fragments go down stream to the sea. Clear water is thus main-

tained in the harbor of the port up to December and sometimes longer. Only later the freezing sea does not "accept" the river ice. It is then that the real ice navigation begins. But at the beginning of April, the ice again can be broken up and it flows out to sea.

Thanks to all this purposeful activity, in the past winter 102 ships came into the port and 104 went out of it independently. With an icebreaker on both sides, 320 motor ships were taken through. Completing this statistic, let us say that over the past winter 455,000 tons of cargoes were delivered into the port and about 1,000,000 tons were taken out, including timber.

Today in the Arkhangel'sk seaport, the region of Ekonomiye, which is experiencing a rejuvenation as it were, is acquiring more importance. Its role in winter navigation is especially important. Nearer to the sea, and having deeper water at its piers than the other regions of the port, it does not require large icebreaking forces. Today it is precisely from here that ships leave with the bulk cargoes and the pipes which until quite recently were directed to the Baltic. But there, the harbors were almost constantly overloaded. Thus, the winter navigation season in Arkhangel'sk can assist in relieving the piers in Leningrad, Riga, Tallin, Kaliningrad, and Klaypeda.

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CS0: 1829/186

OCEAN AND RIVER

HOW TO REDUCE FLEET IDLE TIME

Moscow EKONOMICHESKAYA GAZETA in Russian No 13, Mar 82 p 8

[Article by S. Kleynerman, deputy chief of port services of the Novorossiysk Shipping Company]

[Text] Important tasks of the national economy confront seaport workers in the 11th Five-Year Plan. The main one is to accelerate the processing of ships and rail cars. As practice shows, the ports are far from fully coping with the tasks before them. The idle time of the fleet is still significant, there is an accumulation of ships in the roadsteads, and the intensity of loading and unloading operations is growing with unsatisfactory speed.

The resources for increasing the efficiency of operations, in our opinion, should be sought in the improvement of production and control organization.

The mechanization of cargo operations has grown substantially. Production processes based on the use of high-productivity machines - cranes, container loaders, and specialized facilities have become complicated. An essential person in a port is a highly qualified docker-mechanic who is in charge of all this equipment. For the organizers of the loading and unloading operations - the stevedores and dispatchers, mechanics, and supervisors of cargo zones - it is important to create conditions for the productivity of the work of the dockers.

It is exactly here that the complexities arise.

It is no secret that at seaports an important part of the docker-mechanics are occupied with various auxiliary operations; namely, the repair of buildings, structures, and machinery, the digging of ditches, and cleaning up. Yes, and the supervisors of cargo zones and engineering personnel, as analysis of their time budget shows, devote more than a quarter of the working day to these activities which are not related to cargo operations, to the detriment of the processing of ships and rail cars. Thus, in the port of Il'ichevsk, in separate periods, up to several hundred dockers - a fourth of their complement - are drawn off on these housekeeping operations.

And what are the reasons for this situation? One of them is unsatisfactory work of the repairing and other auxiliary subdivisions and a weak inculcation here of self-supporting management [Khozraschet].

Now, only the chief of a cargo zone is responsible for an inoperative crane or a warehouse roof leak despite the fact that there are specialized repair crews in the port. The repair service, however, is not centralized. In the cargo zones and the other subdivisions processing and servicing the fleet there are numerous stunted, low-productivity repair groups which are not satisfactorily organized in either personnel or equipment. It is from here that aid for the dockers must be drawn.

What would one like to propose?

As is known, the experience of the Volzhsk motor vehicle plant is acquiring ever wider distribution in industry. In fundamental form this is a rearrangement of production functions. All the auxiliary subdivisions and functional services were taken out of the basic shops. The servicing of the production shops whose task is the direct organization of production processes, has been wholly entrusted to central repair and auxiliary shops and the services of control.

Evidently, such a rearrangement of the structure and functions of repair services and their centralization and specialization, even if done in steps, has become ripe for the seaports.

The supervisors and personnel of the repair and other auxiliary subdivisions should be responsible for carrying out the specialized functions assigned to them on the scale of the whole port. Responsibility for unrepaired machinery or structures taken out of service should reside precisely in this subdivision.

The cargo zones and other operational subdivisions are called upon, first of all, to provide for the uninterrupted running of loading and unloading operations and the acceleration of the processing and servicing of the fleet. It is this that is their main assignment.

In our opinion, maritime transportation should set about the rearrangement of the organizational and productive structures on the basis of the experience of the advanced enterprises of the country. It would be advisable for the Ministry of the Maritime Fleet, in organizing such a rearrangement, to begin to conduct experiments at several large ports and according to the results of them, to create the standard and methodological aspects.

In addition, as experience shows, for the purpose of increasing the efficiency of port operations there is a need to create more effective stimuli for the work of the personnel of their subdivisions. In particular, supervisors and the specialists and engineering and technical personnel of the subdivisions of the basic port activity are not made sufficiently interested in increasing the volume of cargo operations and servicing the fleet or in the overfulfillment of production and financial plans. One cargo zone, for example, fulfills the plan by 140 percent and a second by only 100 percent, the result is the same - to the personnel of both zones it is customary to give the same prize as in the saying: "Each sister gets a pair of earrings."

The fact that the material incentive fund is created only for the port as a whole is a hinderance to the stimulation of the personnel and subdivisions to overfulfill the plans.

In our opinion, the need has long since ripened for the use here of the experience of the advanced enterprises of the country of the formation of material incentive funds (at first only in the largest operational subdivisions) for the results of their own economic activity. The personnel should know that if the work is better and more productive, this will be taken into account by the system of morale and material stimulation in accordance with the results of the work of his section or shift. It is necessary to create conditions and full-weight stimuli for high-productivity work of docker-mechanics and organizers of production for each section on every front of loading and unloading work.

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CSO: 1829/186

MISCELLANEOUS

BRIEFS

BRIDGE TO AFGHANISTAN--The first people have crossed the Amu Dar'ya at its upper reaches . . . on foot. They were the builders from Ivan Dovbysh's and Nikolay Kuzyakin's brigades, who finished assembling the last--ninth--span of the bridge across the great Central Asian river. The 800-meter bridge was completed one and a half years earlier than planned--that's how fast the 32nd bridge detachment of Mintransstroy [USSR Ministry of Transport Construction] works. The next task is to open [the bridge] for working movement in May. Now they are laying rails and constructing the roadbed for automobile traffic. Finishers are painting the spans. The new bridge across the Amu Dar'ya will open railroad and motor vehicle service between two friendly countries--the Soviet Union and Afghanistan. Shipping freight without transshipping it to river ships will permit a significant increase in the speed and decrease in the cost of trade turnover. [Text] [Tashkent PRAVDA VOSTOKA in Russian 14 Apr 82 p 1]

CSO: 1829/195

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May 24, 1982